

# TrustWell™ Rating Report

Independence. Intelligence. Integrity.



<b>Producer:</b>	Jonah Energy LLC
<b>Locations:</b>	Wyoming assets
<b>IES Score ID#:</b>	TW-4-00108 (v10.2)
<b>Issued Date:</b>	November 22 <sup>nd</sup> , 2019

## Background:

What Is TrustWell™

The Process

Components

## TrustWell™ Report:

Summary

Detailed Scoring

Inherent Profile

Control Measures

Performance

Continuous  
Improvement

## Appendix:

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## Background Information

# What Is A TrustWell™ Rating?

A TrustWell™ Rating is the most robust mark of quality and achievement in oil & gas operations, risk mitigation and environmental responsibility.

## IES Company Values Underpinning TrustWell™

<b>Independence:</b>	Independent company. Leading experts in engineering, responsibility, and stakeholder engagement.
<b>Intelligence:</b>	Robust, engineering and performance driven approach. Developed through iteration with numerous industry clients.
<b>Integrity:</b>	Diverse engagement from numerous credible stakeholders.

## What Does A TrustWell™ Rating Mean?

### TrustWell™ Rated



**Actively Improving**  
**Score: <75**

Demonstrated dedication  
to continuous  
improvement

### TrustWell™ Silver



**Good**  
**Score: 75-100**

Second quartile  
performance going above  
and beyond basic  
requirements.

### TrustWell™ Gold



**Very Good**  
**Score: 100-125**

First quartile performance  
with highly effective risk  
management practices.

### TrustWell™ Platinum



**Best-in-Class**  
**Score: 125+**

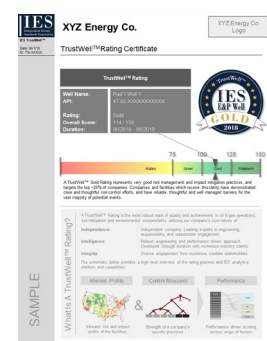
Top 10% of peers with a  
demonstrated mastery  
over risk control and  
implementation.

## How Is A TrustWell™ Rating Used?

TrustWell™ Ratings are used to credibly differentiate operations, and the oil & gas produced from those operations.

Most notably, they are used for gas purchasers to be able to source TrustWell™ Responsible Gas.

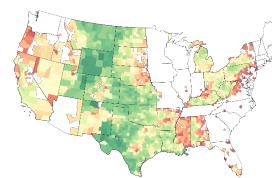
TrustWell™ Ratings can also be used in sensitive communities, or in conjunction with other stakeholders.



# TrustWell™ Process and Report Structure

## Step 1: Inherent Profile

Every location and type of operation has different risk factors and drivers, our assessment starts by understanding how this type of operation and locations compare to others via systematically evaluating against our facility datasets.



**41.0**

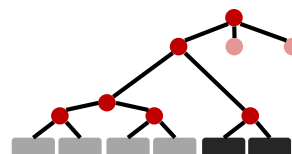
Applicable Range: 18-67

Relative measure of relevant local and asset risk factors.

Example: Based on the type of operations, the applicable inherent profile range is narrowed from 0-100 (higher is worse) to 18-67. Then based on local factors exposure, the inherent profile score is determined within that applicable range to be 41.0.

## Step 2: Control Measures

Controls are evaluated at the levels of policy, plan, and execution. We assess control quality versus a range of industry practices which we have distilled into approximately 20 technical scoring libraries and rubrics. We then map how controls interact with one another to form a control system, and score that control system.



**3.40**

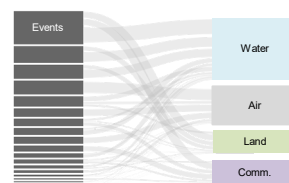
Max Score: 5.00

Measure of quality of policy, plan and execution framework to control risk.

Example: Based on the combination of controls in place, and evaluating with technical rubrics, the controls in place merit a 3.40 overall score out of 5.00 (higher is better).

## Step 3: Performance Rating

Inherent profile factors and control measures are mapped to specific events. From their combination we calculate a performance score. This is done on the event level, as well as in aggregate for the facility. Events are mapped to the categories of Water, Air, Land and Community, to allow category scoring as well.



**112**

Max Score: 150

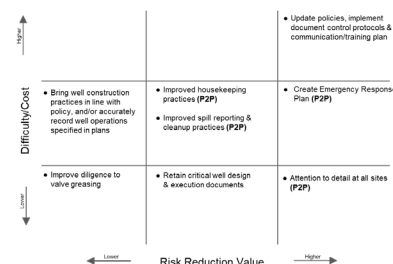
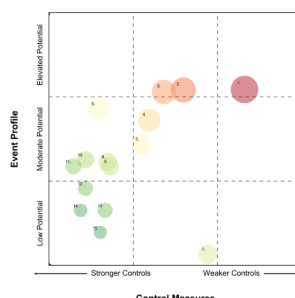
Performance rating for the specific set of assets and operations.

Example: The reasonably low inherent risk profile score of 41.0, combined with strong control measures combines for an overall performance score of 112, corresponding to TrustWell™ Gold.

## Step 4: Continuous Improvement

A range of analytics are provided which are intended to assist the producer identify, prioritize and implement actions for continuous risk and impact reduction, and operational improvement.

Example include risk reduction vs. cost grids, and prioritization bubble charts.





# TrustWell™ Components

## Step 1: Inherent Profile

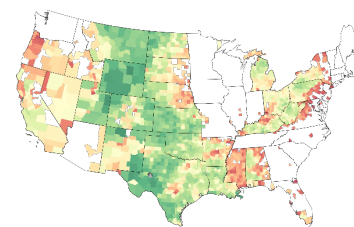
Unique assessment based on the type of operation and location. Includes over 4.5 million benchmark facilities and risk data points such as:

### Operation type...

- Well complexity
- Well age and type (vertical, directional, horizontal)
- ..and more.

### Location proximity to...

- Flow paths
- Communities
- Sensitive areas (environmental, biodiversity)
- ..and more.



## Step 2: Control Measures

&

Controls are evaluated at the levels of policy, plan, and execution. We use technical scoring rubrics, and compile these rubrics to compose a view of aggregate control systems in place. IES' scoring libraries and rubrics include:

### Rubrics 1-10: Downhole

- Surface, intermediate, and production casing
- Surface, intermediate, and production cement
- Subsurface integrity monitoring
- Well Integrity
- Wellhead / Tree
- ..and more.

### Rubrics 11-18: Surface Ops

- Spill prevention and response
- Pits-tanks-impoundments
- Facilities piping & equipment
- Well control (drilling, completions)
- Frac Operations
- Emergency Response
- ... and more.

### Rubrics 19-26+: Impacts

- Emissions (exhaust, flaring, venting)
- Water programs
- Community Engagement
- Waste management
- Reclamation
- ... and more.

## Step 3: Performance Rating

=

IES evaluates numerous impact and risk events, which vary depending on the type of facilities. The primary categories are as follows:

Water



Air



Land



Community



Within each of these categories is a range of topics (events) which map to anywhere from 1 to 4 of the categories, depending on the type of scale of event. Some examples included in the analysis are:

- |                                                                                                                                                                                                     |                                                                                                                                                                                            |                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Aquifer contamination</li> <li>• Excessive venting</li> <li>• Wellhead release</li> <li>• Equipment corrosion</li> <li>• Operations disturbance</li> </ul> | <ul style="list-style-type: none"> <li>• Subsurface contamination</li> <li>• Blowout</li> <li>• Storage vessel release</li> <li>• Road disturbance</li> <li>• Excessive flaring</li> </ul> | <ul style="list-style-type: none"> <li>• Water resources</li> <li>• Spills and leaks</li> <li>• Noxious emissions</li> <li>• Waste disposal</li> <li>• Offset well release</li> <li>• ... and more.</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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# TrustWell™ Rating Report

FINAL

## TrustWell™ Summary (NG1)

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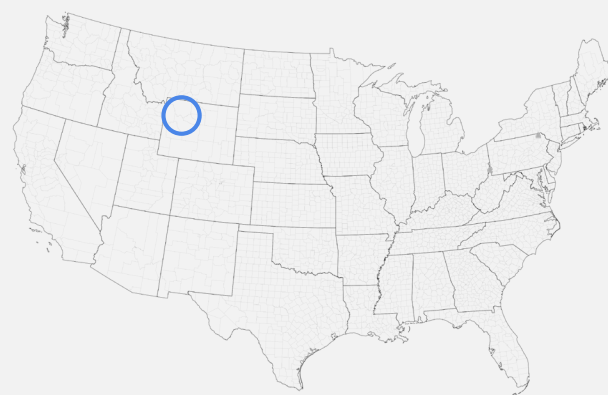
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**Scope:**

WY: 500 total wells

## Scoring and Analytics Summary

### Inherent Profile

**37.4**

Applicable Score Range: 19-73

**What Could Happen?**

Relative measure of relevant  
local and asset risk factors.

### Control Measures

**3.5**

Max Score: 5.00

**How Well Is It Controlled?**

Measure of quality of policy, plan and  
execution framework to control risk.

### Performance Rating

**117**

Max Score: 150

**What Is Overall Performance?**

Performance rating for the specific set of  
assets and operations.

### Water



**114**

Max Score: 150

**What Is Performance for Water?**

Performance rating for the events  
that specifically impact water.

### Air



**121**

Max Score: 150

**What Is Performance for Air?**

Performance rating for the events  
that specifically impact air.

### Land



**118**

Max Score: 150

**What Is Performance for Land?**

Performance rating for the events  
that specifically impact land.

### Community



**112**

Max Score: 150

**What Is Performance for  
Community?**

Performance rating for the events  
that specifically impact comm.

**Summary:** Jonah Energy operates in one of the most uniquely challenging environments in the United States. While O&G operations are expected, any issue or mistake has the potential to be instantly magnified.

To combat this challenge, Jonah Energy has demonstrated fundamentally sound engineering control measures ensuring that they operate to the best of their technical abilities. Strong performance in the Water, Air, Land, and Community categories have earned Jonah a Gold rating.

## Detailed Performance Scoring (NG1)

The below table provides a detailed breakdown of the underlying impact and risk drivers and controls which aggregate into the overall Performance Score.

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	1	2	3	
Event	Inherent Profile	& Control Measures	= Performance Rating	
	"What Could Happen?"	"How Well Is It Controlled?"	"What Is Overall Performance?"	
Overall	37.4	3.5	117	
Annular Migration	29.1	2.9	110.8	
Auto	25.7	3.5	124.5	
Chemical Release	32.2	3.5	120.1	
Chemical Waste	27	3.8	127.8	
Drilling Fluid Contamination	28	3.2	117.9	
Equipment Release	51.2	3.8	114.7	
Exhaust	19.2	3.0	120.4	
Flare	33.7	4.2	132	
Flowback Fluids	49.8	3.6	112.3	
Fluid Transfer Release	38.1	3.7	119.3	
Impoundment Release	32.9	3.0	110.9	
Loss of Subsurface Well Integrity	40.8	3.0	105.2	
Operations Disturbance	31.5	4.5	139.3	
Personnel Safety	64.8	3.5	101.1	
Produced Water	29.2	3.7	124.9	
Storage Vessel Release	35.8	3.7	120.4	
Storm Water Run-off	18.8	5.0	150	
Subsurface Well Control	38.3	3.0	107.1	
Surface Well Control	71.8	3.0	84.8	
Uncontrolled Fracture	47.5	3.0	101.2	
Vessel Corrosion	28.8	3.7	125.2	
VOC Emissions	35.9	4.2	132.3	
Water Resources	31.7	3.0	111.7	
Well Intersection	26.5	3.0	115.4	
Wellhead LOPC	67.4	2.8	84.1	

Water	Air	Land	Comm.
114	121	118	112
110.8			
	124.5		124.5
120.1		120.1	
127.8		127.8	
117.9		117.9	
114.7	114.7	114.7	
	120.4		
	132		
112.3		112.3	
119.3		119.3	
110.9		110.9	
105.2			
	139.3	139.3	139.3
			101.1
124.9		124.9	
120.4	120.4	120.4	
150		150	
107.1			
84.8	84.8	84.8	84.8
101.2			
125.2		125.2	
	132.3		132.3
111.7		111.7	111.7
84.1		84.1	



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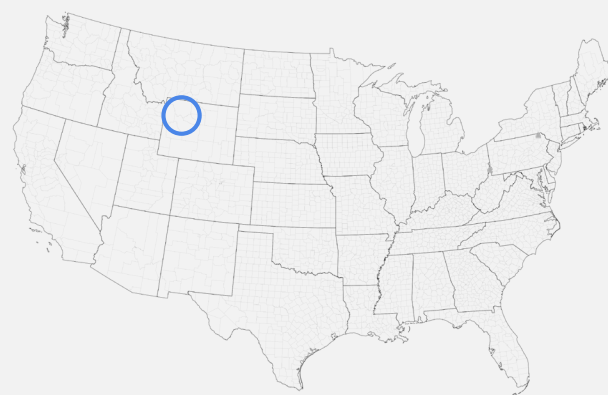
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**Scope:**

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Performance rating for the events that specifically impact water.

### Air



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**What Is Performance for Air?**

Performance rating for the events that specifically impact air.

### Land



**118**

Max Score: 150

**What Is Performance for Land?**

Performance rating for the events that specifically impact land.

### Community



**112**

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Performance rating for the events that specifically impact comm.

**Summary:** Jonah Energy operates in one of the most uniquely challenging environments in the United States. While O&G operations are expected, any issue or mistake has the potential to be instantly magnified.

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Auto	25.1	3.5	125
Chemical Release	33.8	3.5	119
Chemical Waste	26.8	3.8	128
Drilling Fluid Contamination	28	3.2	117.9
Equipment Release	49.1	3.8	115.6
Exhaust	19.1	3.0	120.4
Flare	33.3	4.2	132.1
Flowback Fluids	46.9	3.6	113.7
Fluid Transfer Release	38	3.7	119.3
Impoundment Release	32.2	3.0	111.4
Loss of Subsurface Well Integrity	39.7	3.0	106.1
Operations Disturbance	33.4	4.5	139
Personnel Safety	66	3.5	100.3
Produced Water	29.1	3.7	125
Storage Vessel Release	35.8	3.7	120.4
Storm Water Run-off	18.8	5.0	150
Subsurface Well Control	37.3	3.0	107.8
Surface Well Control	70.8	3.0	85.4
Uncontrolled Fracture	46.1	3.0	102
Vessel Corrosion	31.6	3.7	123.3
VOC Emissions	36.5	4.2	131.9
Water Resources	31.7	3.0	111.7
Well Intersection	22.8	3.0	118
Wellhead LOPC	65.9	2.8	85

Water	Air	Land	Comm.
114	121	118	112
110.8	125		125
119		119	
128		128	
117.9		117.9	
115.6	115.6	115.6	
	120.4		
	132.1		
113.7		113.7	
119.3		119.3	
111.4		111.4	
106.1			
	139	139	139
			100.3
125		125	
120.4	120.4	120.4	
150		150	
107.8			
85.4	85.4	85.4	
102			
123.3		123.3	
	131.9		131.9
111.7		111.7	111.7
85		85	

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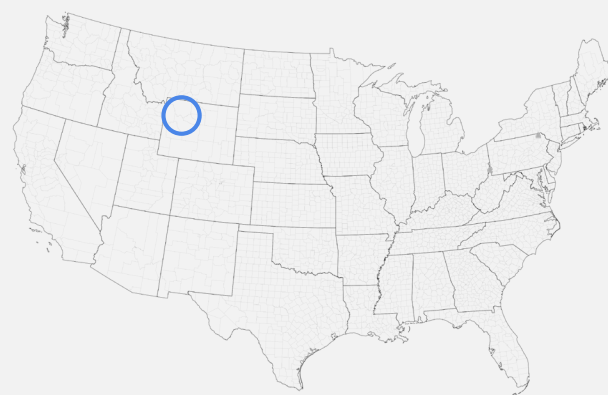
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Performance rating for the events  
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Operations Disturbance	34.8	4.5	138.8
Personnel Safety	68.1	3.5	99.4
Produced Water	29.2	3.7	124.9
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Storm Water Run-off	18.8	5.0	150
Subsurface Well Control	37.2	3.0	107.8
Surface Well Control	70.7	3.0	85.4
Uncontrolled Fracture	45.9	3.0	102
Vessel Corrosion	33.9	3.7	121.7
VOC Emissions	37	4.2	131.7
Water Resources	31.7	3.0	111.7
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Water	Air	Land	Comm.
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110.7			124.9
118.1		118.1	
127.9		127.9	
117.9		117.9	
115.6	115.6	115.6	
	120.4		
	132.4		
113.7		113.7	
119.3		119.3	
111.4		111.4	
106.1			
	138.8	138.8	138.8
			99.4
124.9		124.9	
120.4	120.4	120.4	
150		150	
107.8			
85.4	85.4	85.4	85.4
102			
121.7		121.7	
	131.7		131.7
111.7		111.7	111.7
84.9		84.9	

## 1 Inherent Profile

Every location and type of operation has different risk factors and drivers, our assessment starts by understanding how this type of operation and locations compare to others via systematically evaluating against our facility datasets, leveraging public and proprietary data.

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- Components

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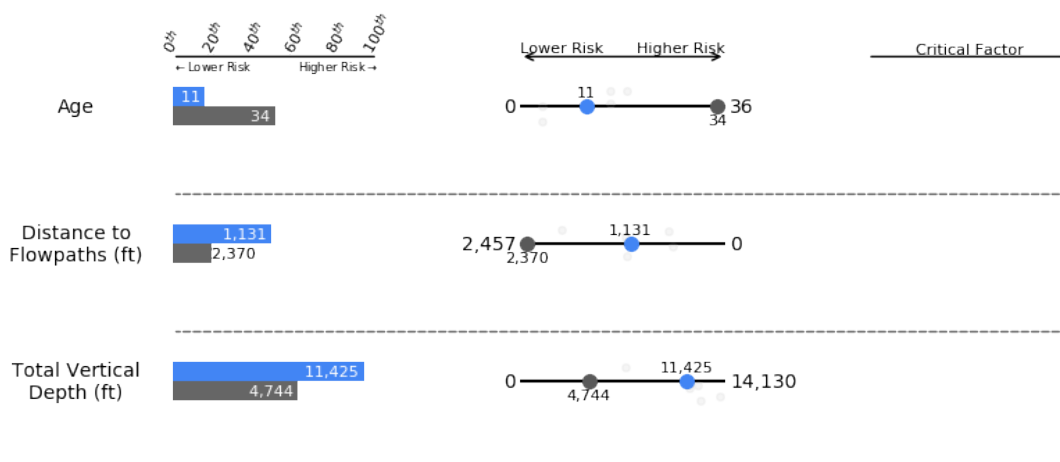
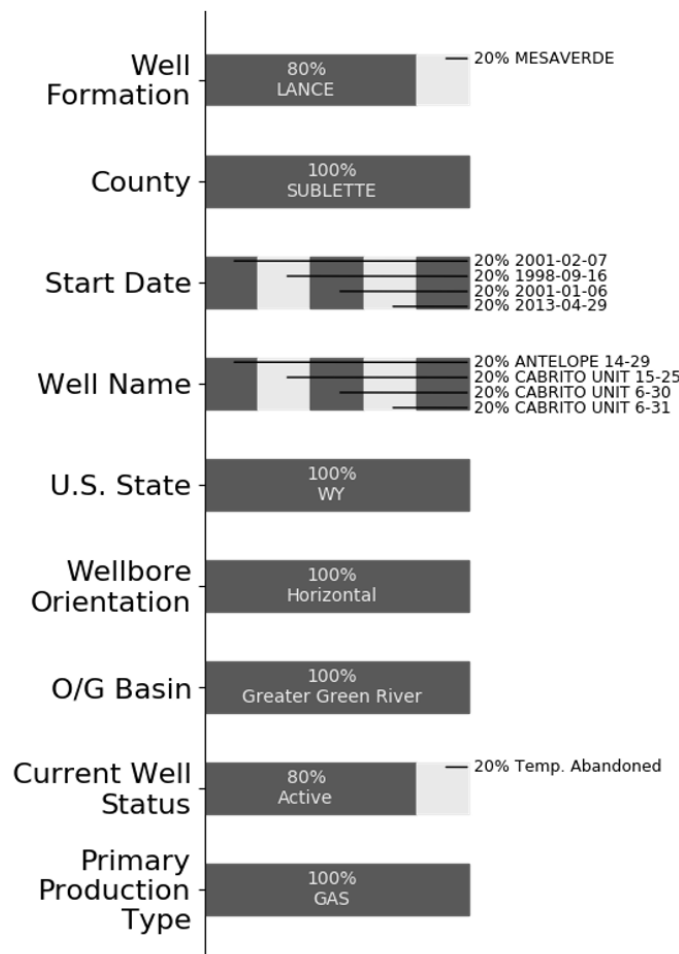
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### Asset Characterization:



### Well Attributes:





## 2 Control Measures

Controls are evaluated at the levels of policy, plan, and execution. We assess control quality versus a range of industry practices which we have distilled into approximately 20 technical scoring libraries and rubrics. We then map how controls interact with one another to form a control system, score that control system, and map which control systems control different events.

**Legend: Component Scores**  
1 ← → 5  
Below Exemplary  
Expectations

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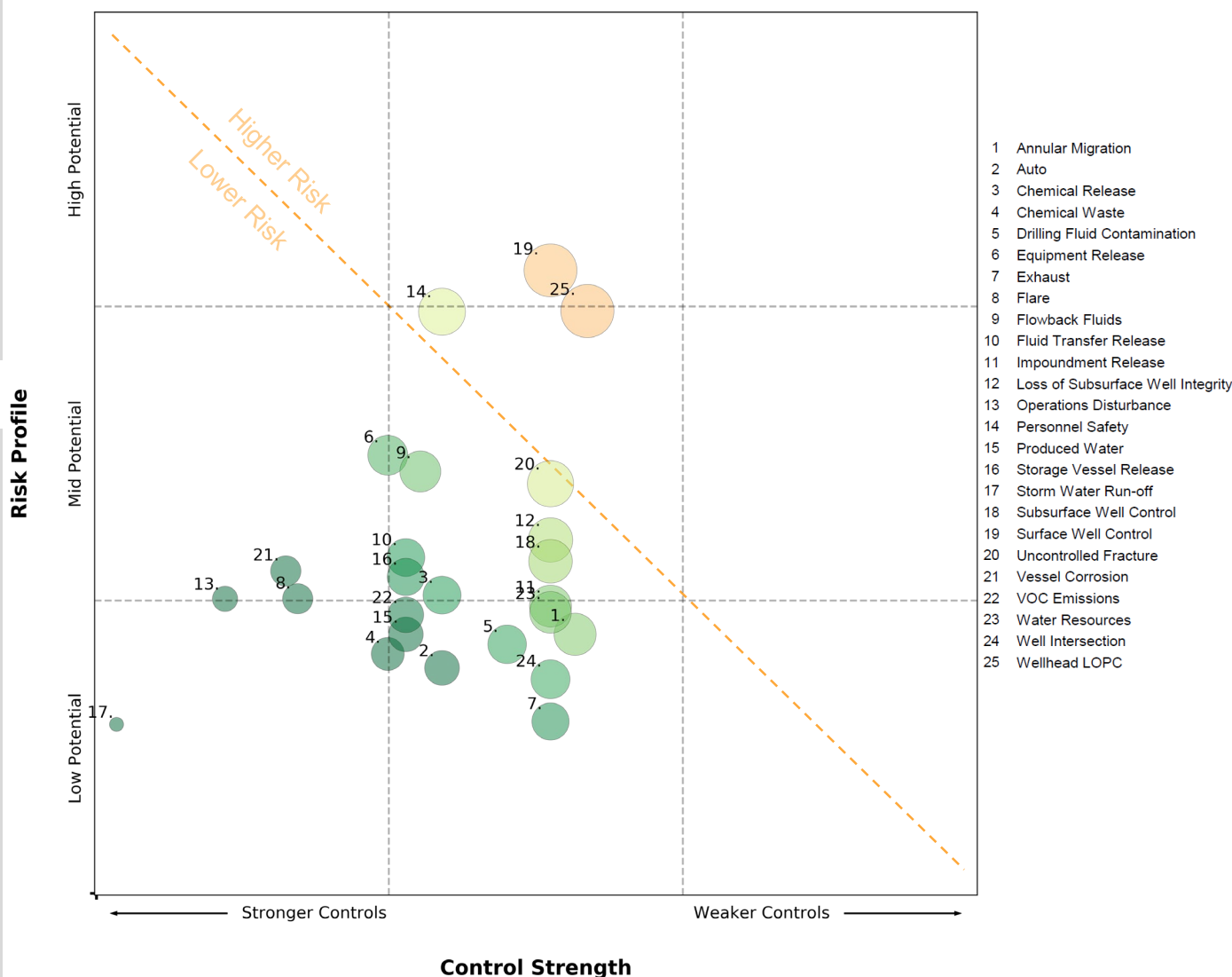
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	1.0 - 5.0	Components			Comments
	Control Quality	Policy	Plan	Execution	
<b>Well Integrity</b>					
Surface Casing	3.0	3	3	3	General surface casing design, meets regulations
Intermediate Casing	N/A	N/A	N/A	N/A	No intermediate casing
Production Casing	3.0	3	3	3	Good production casing design and program. Meets expectations
Production Tubing	3.0	3	3	3	Limited data on production tubing, but design appears sound
Surface Cement	3.0	3	3	3	General surface cement design, meets regulations
Intermediate Cement	N/A	N/A	N/A	N/A	No intermediate casing
Production Cement	3.0	3	3	3	Production cement requirements clearly outlined in MDP
Well Integrity	3.0	3	3	3	SCADA installed on production casing/tubing. Surface casing not regularly monitored
Wellhead/Tree	2.7	3	3	2	Manual gauges not reading properly. SCADA tied to production tubing and production annulus.
<b>Site Impact</b>					
Reclamation	5.0	5	5	5	First class reclamation activities. Well above and beyond
Pits-Tanks-Impoundments	3.0	3	3	3	Open pits and tanks in use for drilling. Closed per reclamation and outlined timeframes
<b>Operations Risk</b>					
Emergency Response	3.0	3	3	3	Solid emergency response but opportunity to improve around Sim-ops
Anti-Collision	3.0	3	3	3	Standard anti-collision practices
Well Control (Drilling)	3.0	3	3	3	Basic well control practices, but need further development with nearby completions ops
Well Control (Completions)	3.0	3	3	3	Basic well control practices, but need further development with nearby drilling/production ops
Frac Ops	3.0	3	3	3	Frac program provides basic information
Spill Prevention	4.0	4	4	4	Excellent spill prevention program with engagement from local resources and team members
Spill Response	4.0	4	4	4	Excellent spill reporting flow chart with clear requirements/expectations
<b>Operations Impact</b>					
Exhaust	3.0	3	3	3	Great efforts to reduce exhaust emissions from drilling operations
Flare	4.0	4	4	4	Excellent flaring practices with strong controls and continuous ignition
Operational Disturbance	4.3	4	4	5	Outstanding mitigation of operational impacts
VOC Emissions	4.3	4	4	5	World class FLIR program with cutting edge technology (drones)
Water Resources	3.0	3	3	3	Flowback water is reused for operations
Waste Management	4.0	4	4	4	Solid waste management program with waste tracking

**Summary:** Jonah Energy has demonstrated a clear understanding of the necessary practices affiliated with good operational principles. The scores above demonstrate competency and commitment throughout their business.

## 3 Performance Scoring

Inherent Profile factors and Control Measures are mapped to specific events. From their combination we calculate a Performance Score. This is done on the event level, as well as in aggregate for the facility. The bubble chart below displays this for each event. In general, events in the bottom left are lower risk / impact, and the top right are higher risk / impact. The diagonal dotted line represents a notional balance between risks /impacts and controls. A producer's organizational goals may dictate alterations to the slope or location of the line.



**Summary:** The plot shows that Jonah has established a set of controls that is generally effective in managing its risks. The items that present the greatest risk to Jonah operations are Wellhead LOPC, Surface Well Control, and Personnel Safety.

## Strengths and Opportunities

Our assessment of Control Measure quality is driven by a number of tangible strengths and opportunities which are highlighted below.

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## Strengths

### Cultural Excellence

Throughout TrustWell process, Jonah has displayed a constant commitment to excellence. Clearly not content to meet expectations, the entire company has been committed to providing the critical documentation, giving their time and expertise, while working towards continuous improvement.

Every individual is invested in the community and takes a personal interest in ensuring that the necessary work is done properly.

### Spill Prevention & Response

Extremely detailed and well thought out spill prevention practices. Strong practices are essential for operating in that region, and Jonah personnel proves up to the challenge.

Very well laid out spill response flow chart. Necessary and immediate actions, responsible personnel, and reporting requirements are clearly outlined.

### Emission Reduction & Monitoring

Jonah clearly strives to not only be a leader in emissions controls, but a ground-breaker. The implementation of drone technology in addition to LDAR practices that go well above regulatory requirements clearly set the foundation for their environmental commitments.

Innovative FLIR program incorporating new technology to track, identify, and monitor emissions. Testing and monitoring are done far more frequently than the industry average.

Outstanding reclamation practices with an objective to leave the location better than how they found it.

## Opportunities

### Wellhead Maintenance

Opportunity to improve wellhead monitoring. Consider implementing SCADA on all annuli and replacing or re-installing manual gauges that are not reading proper pressures.

Creation of wellhead maintenance plan containing dates for mandatory preventative maintenance such as greasing (3<sup>rd</sup> party or Jonah personnel).

Installation of gauges on all annuli. Currently surface casing is monitored bi-annually and no permanent gauge is installed.

### Sim-Ops & Emergency Response

With all phases of operations potentially happening the creation of a plan containing control measures, risks, variances from standard operations, and lessons learned would help mitigate the potential of an incident.

No formal contract is in place with a preferred well control company. Establishing a preferred company and having an understanding their requirements/needs before it's critical would help reduce confusion.

Creation of phase to phase handoff checklists (drilling to completions, completions to production) can help ensure all necessary steps are completed prior to handoff.

Ensure emergency response documents notification flowcharts align.

### Continuing with the next steps

Ensuring that the technology investments in the LDAR program yield the maximum results. The software should allow trend monitoring that could help identify future leaks and continuous hot spots.

### Summary:

Jonah's location results in a series of very unique challenges. Despite a rural setting, the consequences of an environmental incident are significantly higher than other areas of the United States. To address these, Jonah prides itself on leading environmental practices specifically regarding reclamation and emissions.

The primary opportunities for Jonah center around wellhead maintenance and the development of a detailed sim-ops plan.

## Activity Prioritization

IES recognizes that risk and impact management is an exercise in recognizing and prioritizing tradeoffs. The following matrix prioritizes opportunities by difficulty/cost and risk/impact value. We also provide guidance with respect to the actions which will have the greatest impact on improvement in the Performance Score.

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<p>Higher</p> <p>↑</p> <p>Difficulty/Cost</p> <p>↓</p> <p>Lower</p>			
	<ul style="list-style-type: none"> <li>Enhancing the current completion procedure to include trouble-shooting scenarios and methodology. Include lessons learned, preferred equipment layout, anticipated pressures, and roles/responsibilities.</li> </ul>	<ul style="list-style-type: none"> <li>Creation/Update of a formal Sim-ops plan addressing all phases of operations. Plan may include control measures, risks, variances from standard operations, and lessons learned. <b>(P2P)</b></li> </ul>	
	<ul style="list-style-type: none"> <li>Address any flowchart inconsistencies across emergency response documentation.</li> <li>Conduct no-notice drills with all responsible emergency providers including senior management. <b>(P2P)</b></li> </ul>	<ul style="list-style-type: none"> <li>Installation of electronic gauges on all casing annuli <b>(P2P)</b></li> <li>Installation/correction of manual gauges not properly installed or not reading accurate pressures <b>(P2P)</b></li> <li>Creation of phase hand-off checklists.</li> </ul>	<ul style="list-style-type: none"> <li>Establish relationship with a preferred well control service provider and ensure all critical documentation is provided <b>(P2P)</b></li> </ul>
	← Lower	Risk Reduction Value	Higher →

### Summary:

Action items highlight opportunities that, if performed diligently, would lead Jonah to an even lower risk exposure.

Activities further right on the X-axis lead to greater risk reduction, while items higher on the Y-axis are more difficult/costly to implement.

Path to Platinum (P2P) action items highlight opportunities that, if performed diligently, would lead Jonah to IES TrustWell Platinum ratings.

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# Program Specifications

## TrustWell™: Claims and Specifications for Buyers

### Claims and Specifications

When buying TrustWell™ Responsible Gas, gas purchasers are not only demonstrating their commitment to responsibly sourced energy, they are able to know and claim specific things about that gas as a result of it having gone through the TrustWell™ process. The below is an articulation of these claims and specifications, for the purchasers of TrustWell™ Responsible Gas.



When you buy TrustWell™ Responsible Gas, you are demonstrating a commitment to responsibly developed energy. Specifically..

- The facility from which the gas has been produced was individually rated, certified and inspected by IES in accordance with the TrustWell™ Ratings system, on an annual basis, including..
- Review of hundreds of specific engineering and impact criteria covering water, air, land and community
- Assessment and quantification of local risk conditions
- Benchmarking against IES' dataset of over 4.5 million facilities.

TrustWell™ responsibility scoring and certification targets..

- Platinum to be more responsible than 90% of other operators
- Gold to be more responsible than 75% of other operators
- Silver to be more responsible than 50% of other operators



**IES VERIFIED  
ATTRIBUTES**

In addition to the above claims, some TrustWell™ gas includes additional attributes that have been verified as part of the TrustWell™ process for buyers who care about those specific attributes.



**LOW-METHANE  
0.XX%**

- Producer's methane program meets specific requirements.
- Methane intensity (leak rate) is at or below IES required threshold.
- Methane footprint reduction via buying this gas vs. commoditized gas can be quantified based on transaction volumes.



**FRAC-FREE**

- Gas was produced without use of hydraulic fracturing.

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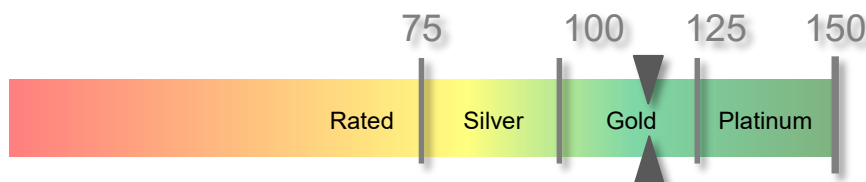
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## TrustWell™: Rating Certificate

### TrustWell™ Rating

Well Name:	XXXXXXX
API:	XX-XXX-XXXXX
Rating:	Gold
Overall Score:	117 / 150
Duration:	11/2019 – 10/2020
Verified Attributes:	Low Methane (2018)



A TrustWell™ Gold Rating represents *very good* risk and impact mitigation practices, and targets the top ~25% of companies.

Companies and facilities which receive this rating have demonstrated clear and thoughtful control efforts, and have reliable and well managed barriers for the vast majority of potential events.



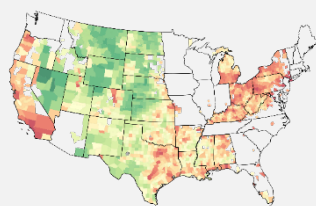
### What Is A TrustWell™ Rating?

A TrustWell™ Rating is the most robust mark of quality and achievement in oil & gas operations, risk mitigation and environmental responsibility, utilizing our company's core values of:

- Independence:** Independent company. Leading experts in engineering, responsibility, and stakeholder engagement.
- Intelligence:** Robust, engineering and performance driven approach. Developed through iteration with numerous industry clients.
- Integrity:** Diverse engagement from numerous credible stakeholders.

The schematic below provides a high level overview of the rating process and IES' analytics platform and capabilities.

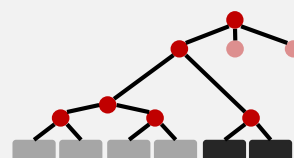
#### Inherent Profile



Inherent risk and impact profile of the facilities.

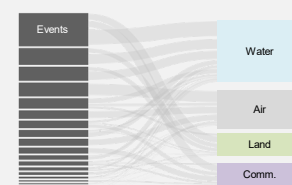
#### Control Measures

&



Strength of a company's specific practices.

#### Performance



Performance driven scoring, across range of factors.

## TrustWell™ Verified Attribute: *Low Methane*

### Verified Attributes

A TrustWell™ Verified Attribute is a specific attribute of the facility and its affiliated production that has been verified during the overall TrustWell™ Rating process.

### TrustWell™ Low Methane

The TrustWell™ Low Methane Program is intended to serve as an independent verification, qualification and quantification of methane emissions performance in the production of natural gas. The program combines a set of qualitative criteria which the operator needs to meet, and an independently verified quantification of methane emissions.



IES VERIFIED  
ATTRIBUTES

CH<sub>4</sub>

LOW-METHANE  
0.200%

### Qualification

The following are the minimum criteria that an operator must demonstrate to be considered for the Low Methane program.

### Quantification

The following provides a verification of the methane intensity level, and a quantification of methane emission reductions for the volumes of gas being produced.

#### Program Qualification Requirements

Established targets, measuring metrics, and commitments to reducing methane intensities at the management level	✓
FLIR/LDAR testing conducted at regular intervals	✓
Procedures and timelines in place for corrective actions	✓
Documented estimates of venting volumes	✓
Currently at or below methane intensity of NETL (EPA GHGRP and GHGI) industry avg. of 0.62% and ONE Future participant target of 0.28%.	✓

#### Segment:

Production

#### Protocol: (for Emissions)

US EPA

#### Protocol: (for Intensity)

ONE Future 2018

#### Benchmark: Granularity:

NETL (via EPA)  
Basin-Level Driven

#### Well Name: API:

XXXXXXX  
XX-XXX-XXXXX

#### Methane Intensity: Reduction Factor:

0.20%  
0.08425 metric tonnes of CH<sub>4</sub>  
per MMSCF of production

## Well Scoring Breakdown

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### Sample Wells

#### Wyoming

Well Name	Inherent Risk Profile	Control Measures	Performance Score	Rating
<b>New Well Group 1</b>				
Cabrillo 111-18	37.4	3.5	117	Gold
Antelope 113X-18	37.4	3.5	117	Gold
Antelope 122-18	37.4	3.5	117	Gold
<b>Mid Well Group 1</b>				
Antelope 14-29	37.1	3.5	117	Gold
Antelope 91-29H	37.1	3.5	117	Gold
CAB 13P5	37.1	3.5	117	Gold
<b>Old Well Group 1</b>				
CAB 6-30	37.4	3.5	117	Gold
CAB 6-31	37.4	3.5	117	Gold
CAB 15-25	37.4	3.5	117	Gold

The producing wells above represent a sample well set that was utilized for each well group. An extended excel file with scoring specifics for all wells will be provided with the final report.

### Brief Explanation of Scores Differences Between Wells

Limited variability between similar assets is normal and expected. The proximity of the wells and similar design criteria expectedly produce equal control scores and similar risk profiles.

## Facility Breakdown

### Legend

- + Bullets that begin with a '+' indicate strengths
- Bullets that begin with a '-' indicate opportunities

### Culture

- + All personnel are heavily invested in the community. Clear desire to be an industry leader in multiple phases of their operation.
- + Throughout the business, responsible and accountable personnel have been established for all phases of operations.
- + Continuously looking for ways to improve and technology to implement.

### Emissions Practices

- + Extensive efforts put towards the FLIR program and emissions monitoring. The implementation of drone technology is cutting edge for the industry.
- + Flare practices are a big strength. 99% destruction of VOC emissions with actual testing done to verify results.
- + Leaks are actually measured via Bacharach bags.
- + Industry leading reclamation process. Specialized seeding with annual assessments are utilized to not just reclaim but improve the area.
- + Implementation of new technology for LDAR/FLIR programs. Utilizing technology to help track trends and areas of continuous concern will allow the company to address issues before they become a significant problem.

### Well Integrity

- + Lease operators are able to visit all wells on their route each day.
- + SCADA monitoring allows lease operators to plan their route accordingly and provides immediate notification of any issues.
- Surface casing is not continuously monitored and is only checked bi-annually.
- Manual gauges installed were not reading pressures that matched the SCADA reading. Important for lease operators to be able to validate pressure readings, especially if an abnormal pressure reading is present.
- No preventative wellhead maintenance program is currently being utilized. Operators conduct greasing on an as needed basis, but a preventative maintenance program with at least annual greasing would prolong functionality and life of the wellhead.

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## Facility Breakdown

### Other Aspects Reviewed

#### Emergency Response & Simultaneous Operations

- + Company provided both an incident command emergency notification system and a crisis communication plan.
- + The crisis communication plan clearly outlined various scenarios and the requirements/expectations aligned with each of those scenarios.
- + Competency training is required for training programs and classes
- Opportunity develop and implement a detailed sim-ops program. Drilling, completion, production, and construction all have the potential for active operations on the same pad. A detailed program outlining potential risks to other phases, control measures, variance from standard operating procedures, etc. is necessary to ensuring safe operations.
- Opportunity to conduct full-scale no-notice drills reaching all the way up to senior management.
- No existing partnership with a preferred well control vendor.

#### Miscellaneous

- + Jonah actively implements dust mitigation and road maintenance on the county road used to access locations.
- + All wells are in relatively close proximity to each other. Despite a large number of wells, field personnel could get to any location within 1-2 hours if necessary.



Good example of LOTO and notification



Single master valve design

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Assets  
Verified

For this initial process, IES conducted verification of 500 of Jonah's wells in Wyoming for the TrustWell Low Methane Verified Attribute program. The specific wells are designated on the certificates contained herein. The following is a summary of IES' process for these facilities.

Qualification Summary

### Established targets, measuring metrics, and commitments to reducing methane intensities at the management level

*Jonah Energy has actively targeted a 2% overall emission reduction per year since 2014. They plan and budget for emission reducing projects demonstrating a clear commitment to reducing emissions and targeted reduction amounts.*

### FLIR/LDAR testing conducted at regular intervals

*Jonah has provided documentation surrounding their LDAR/FLIR monitoring program and provided additional detail through interviews and technical demonstrations. Jonah requires its facilities to be monitored on a monthly basis and assets acquired are inspected on a quarterly basis.*

*In addition to the hand-held camera inspections, Jonah utilizes drone technology to further reduce its emissions impact on such an environmentally sensitive area.*

### Procedures and timelines in place for corrective actions

*Procedures and timelines were provided during the interview process and outlined in their Enhanced Directed Inspection & Maintenance Procedure. Any leak detected during inspection is repaired within 24 hours. Protocols and notifications are in place in the event that a leak cannot be repaired within 24 hours.*

### Documented estimates of venting volumes

*Jonah Energy provided their methane intensity calculation for the Green River Basin in addition to a summary of their Subpart W reporting form. The methane intensity calculation utilizes One Future methodology.*

### Currently at or below methane intensity threshold for relevant segment(s).

*Currently at 0.20% as a company, which is below the threshold for qualification in the TrustWell Low Methane program. The thresholds used for relevant segments are 0.29% from OGCI's 2018 aggregated upstream intensity and 0.62% from the NETL (EPA GHGRP) overall industry average.*

Quantification  
Summary

*Jonah's quantification work was done using EPA frameworks for emissions. IES verified the methane intensity calculation and a methane intensity of 0.20% utilizing the One Future methodology.*

*0.62% was used as the industry average methane intensity benchmark, based on the 2018 NETL Lifecycle Analysis (LCA) that was reported in the "Industry Partnerships and Their Role in Reducing Natural Gas Supply Chain Greenhouse Gas Emissions" report, derived using EPA's Greenhouse Gas Reporting Program and Greenhouse Gas Inventory.*

*Based on this benchmark, the calculated reduction factor is as follows:*

*0.118628 (0.62%) – 0.034468 (0.20%) = 0.08425 Tonnes/MMscf*

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Geologic Prognosis	
Area of Review subsurface	
Reservoir Analysis	
Well Basis of Design (D&C)	
Well Design Risk Assessment	
Well Design (D&C)	
Drilling Procedure	
Mud Program	
Directional Plan	
Casing Design	
Cementing Design	
Cementing Procedure	
Completion Procedure	
Frac Procedure	
Tubing/Packer/Lift Design	
Wellhead & Tree Design	

WELL REPORTS	
Daily Drilling Reports	
Pad/Pit Construction	
Casing Tallies/Reports Surface	
Casing Tallies/Reports Intermediate	
Casing Tallies/Reports Production	
Cementing Rpt/Job Log Surface	
Cementing Rpt/Job Log Intermediate	
Cementing Rpt/Job Log Production	
Cement Bond Logs	
Direct - DD/LWD Logs	
Mud Reports	
Mud Log	
Logs	
Daily Compl Reports	
Frac Reports	
Pressure Tests	
Tubing/Pkr/Lift Tallies/Reports	
Well Summary Report	

FACILITY	
Plans/Specs	
Test & Startup Procedures	
Operating Procedures	
Surveillance/Monitoring	

ENVIRONMENTAL	
Risk Assessment Overview	
Chemical/Fuel Transfer	
Emissions Guidelines	
Emissions Tracking	
Stormwater Policy	
Spill Containment Plan/SPCC	
Secondary Containment Guidelines	
Surface Surveillance Plan/LDAR	
Subsurface Surveillance Plan	
Waste Management Policy	
Waste Tracking	
Emergency Action Plan	
Emergency Response Plan	
Ground Water Monitoring Plan	
Water Plan	
Water Tracking	

MANAGEMENT	
Management Systems Overview	
Contractor Management	
Change Management	
Goals & Metrics	
Performance Review	

Information Review Legend	
	Document Provided
	Partial Documentation Provided
	Limited or Verbal Documentation
	Not Provided
	Not Applicable or Not Requested



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Term	Definition	Unit	Application	Derivation	Calculation
<b>Aboveground Biomass</b>	Average aboveground live dry biomass estimate	kg/mi <sup>2</sup>	Higher levels of aboveground biomass indicate higher sensitivity to oil and gas incidents		
<b>Accident Fatality Rate</b>	Average number of fatal accidents per county from 2010 - 2015, normalized by county population	count	Determine the accident fatality rate of the counties of this set of wells	Data from the National Highway Traffic Safety Administration	(# of fatalities in county of well) / (# total fatalities) ***Normalized by population
<b>Account Factors</b>	Activity and performance factors	index		An index derived by aggregate metrics specific to an account	
<b>Aggregate Risk Drivers</b>	The main metrics driving summarized scores	NA	The most important factors driving the overall score. Meant to be provide a high level summary of primary metrics		
<b>Asset Factors</b>	Asset risk factors	index		An index derived by aggregate metrics specific to this set of assets	
<b>Average Local Speed Limit</b>	Average speed limit of roads within 25 mile radius	mph	High average local speed limits can show what type of travel is done near assets. This is useful in determining the behavior and risk of both employee commute and trucking operations.		N/A
<b>Congestion</b>	Population density per square mile (by zip code)	ppl/mi sq	High levels of congestion can increase the likelihood of automotive incidents	Data from the US Census Bureau	population density per square mile in zip code of well
<b>Critical Factors</b>	Flagged outliers pertaining to a specific metric	NA	Location specific factors which exceed various criticality criteria. Meant to flag areas of concern for a given account	NA	
<b>Distance to Community</b>	Distance in miles from this well to local infrastructure	miles	Shorter distance to community means a higher risk of community impact in the case of an incident	Computation of distance from asset location to common community markers	
<b>Distance to Flowpaths</b>	Distance to the nearest route to flowing water	miles	Shorter distance to flowpaths means a higher risk of contaminating sensitive water	Computation of distance from asset to nearest flowpath	
<b>Distance to Hospital</b>	Distance to nearest hospital	miles	Greater distance to hospitals can increase the severity of an automotive incident	Computation of distance from asset to nearest hospital	distance from wellbore to nearest hospital
<b>Fault Risk</b>	Risk level of fault lines near these assets	index	Wells located near high risk faults increases the chance of a seismic related incident		

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<b>H2S Concentration</b>	Levels of H2S local to the assets	index	High levels of H2S put facility workers at high risk	NA	
<b>Law Enforcement Presence</b>	An estimation of law enforcement present based on the distance to the nearest law enforcement office	index	High levels of local law enforcement may reduce the risk of Site Security related incidents		
<b>Local Factors</b>	Local conditions that are relevant to the risk and exposure to oil and gas assets	index		An index derived by aggregate metrics specific to the location of this set of assets	
<b>Oil Production Volume</b>	Monthly oil production	bbl	High levels of oil production can indicate high levels of trucking activity		Production Oil
<b>Oxides of Nitrogen</b>	Amount of nitrogen oxides in parts per billion.	ppb			
<b>Ozone</b>	Amount of ozone at ground level in parts per million	ppm			
<b>Precipitation</b>	Average precipitation in 2016	inches	Higher frequency of precipitation creates inclement driving conditions	Data from the National Weather Service	Precipitation
<b>Protected Land</b>	Percentage of HUC (hydrologic unit code) classified as Protected by Intl Union for Conserv. Nature.	percentage			
<b>Risk Profile</b>	Overall risk profile based on Account, Asset and Local Factors	index	A risk profile provides the highest level overview of an account. It provides a way to quickly understand related risk of an account		
<b>Saltwater Production Volume</b>	Monthly saltwater production	bbl			N/A
<b>Scenario</b>	Specific events that may occur under a policy	NA	Identify different types of events that may hit a policy, and the metrics that impact the likelihood of an event	NA	
<b>Well Accessibility</b>	Road and terrain conditions near the well		Wells located in areas with high elevation change can present dangerous road conditions	Average slope of roads within a 2 mile radius of the well	average slope of all roads within 2 miles. slope is number of intersections of roads with contours x elevation change per line
<b>Well Complexity</b>	An estimation based on well depth, orientation, and a mix of other metrics	index			